

Probability Unit1 Lesson 2 Hook

Name: _____

Multiple Choice.

You will most likely not know this material. The point of this activity is to see how many questions you can get right by guessing.

Solve the equation algebraically.

1) $x(2x+9) = -9$ 1) _____
 a. 0; -4.5 b. 3; 3 c. -3; -1.5 d. -4.5; 9

2) $4\sqrt{x} + x = 1$ 2) _____
 a. $29 \pm 24\sqrt{5}$ b. $-9 \pm 4\sqrt{5}$ c. $9 - 4\sqrt{5}$ d. $9 \pm 4\sqrt{5}$

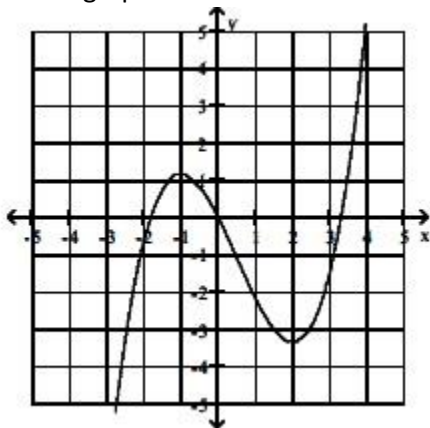
Find the domain of the given function.

3) $f(x) = \frac{(x+6)(x-6)}{x^2+36}$ 3) _____
 a. $(-\infty, -36) \cup (-36, 36) \cup (36, \infty)$ b. All real numbers
 c. $(36, \infty)$ d. $(-\infty, 6) \cup (-6, 6) \cup (6, \infty)$

4) $f(x) = \frac{\sqrt{x+3}}{(x+2)(x-5)}$ 4) _____
 a. $(0, \infty)$ b. $(-\infty, -3) \cup (-3, -2) \cup (-2, 5) \cup (5, \infty)$
 c. All real numbers d. $[-3, -2) \cup (-2, 5) \cup (5, \infty)$

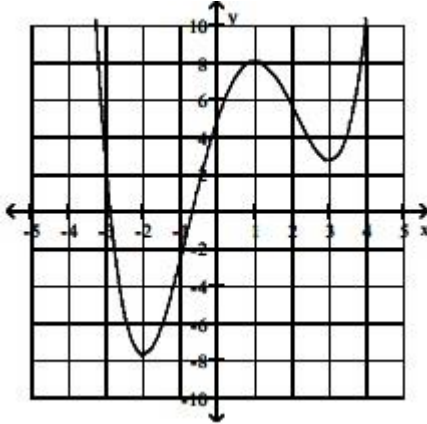
Solve the problem.

5) Use the graph of f to estimate the local maximum and local minimum.



a. Local maximum: approx. 1.17; local minimum: approx. -3.33 5) _____

- b. No local maximum, no local minimum
 c. Local Maximum: ∞ ; local minimum: $-\infty$
 d. Local maximum: -1; local minimum: 2
- 6) Use the graph of f to estimate the local maximum and local minimum.



- a. Local maximum: ∞ ; local minima: -2 and 3
 b. Local maximum: approx. 8.08; local minima: approx. -7.67 and 2.75
 c. Local maximum: 1, local minima: -2 and 3
 d. No local maximum; local minimum: approx. -7.67

6) ____

Identify intervals on which the function is increasing, decreasing, or constant.

- 7) $f(x) = .5(x + 3)^2 - 5$
 a. increasing: $(3, \infty)$; decreasing: $(-\infty, 3)$; constant: $(-3, 3)$
 b. increasing: $(-\infty, -0.5)$; decreasing: $(0.5, \infty)$; constant: $(-0.5, 0.5)$
 c. increasing: $(-3, \infty)$; decreasing: $(-\infty, -3)$
 d. increasing: $(-\infty, -3)$; decreasing: $(-3, \infty)$
- 8) $f(x) = |x-7| - 5$
 a. Increasing: $(-5, \infty)$; decreasing: $(-\infty, -5)$
 b. Increasing: $(7, \infty)$; decreasing: $(-\infty, 7)$
 c. Increasing: $(-7, \infty)$; decreasing: $(-\infty, -7)$
 d. Increasing: $(-\infty, 7)$; decreasing: $(7, \infty)$

7) ____

8) ____

Find the asymptote(s) of the given function.

- 9) $f(x) = \frac{x-4}{x^2+1}$ vertical asymptote(s)
 a. $x = 2, x = -2$ b. $x = 1$ c. $x = -1$ d. None
- 10) $f(x) = \frac{x-5}{x^2-9}$ vertical asymptote(s)
 a. $x = 5$ b. $x = -3$ c. $x = 3, x = -3$ d. $x = 3$
- 11) $f(x) = \frac{4x^2+7}{4x^2-7}$ horizontal asymptote(s)
 a. $y = 1$ b. None c. $y = -7$ d. $y = 7$
- 12) $g(x) = \frac{x+7}{x^2-1}$ horizontal asymptote(s)
 a. $y = 0$ b. $y = -7$ c. None d. $y = 1$

9) ____

10) ____

11) ____

12) ____

Perform the requested operation or operations. Find the domain of each.

13) $f(x) = 4x + 7$, $g(x) = 2x^2$ 13) ____
Find $(fg)(x)$.

a. $8x + 14$; domain: $(-\infty, \infty)$

b. $8x^3 + 14x^2$; domain: $(-\infty, \infty)$

c. $8x^2 + 14x$; domain: $(-\infty, \infty)$

d. $2x^2 + 4x + 7$; domain: $(-\infty, \infty)$

14) $f(x) = \sqrt{6x + 6}$, $g(x) = \sqrt{6x - 6}$ 14) ____
Find $(f + g)(x)$.

a. $6x$; domain: $(-\infty, \infty)$

b. $\sqrt{6x + 6} + \sqrt{6x - 6}$; domain: $[1, \infty)$

c. $x\sqrt{12}$; domain: $(-\infty, \infty)$

d. $\sqrt{12x}$; domain: $[0, \infty)$

Perform the requested operation or operations.

15) $f(x) = 4x + 10$; $g(x) = 4x - 1$ 15) ____
Find $f(g(x))$.

a. $f(g(x)) = 16x + 6$

b. $f(g(x)) = 16x + 9$

c. $f(g(x)) = 16x + 14$

d. $f(g(x)) = 16x + 39$

16) $f(x) = \sqrt{x + 2}$; $g(x) = 8x - 6$ 16) ____
Find $f(g(x))$.

a. $f(g(x)) = 8\sqrt{x - 4}$

b. $f(g(x)) = 8\sqrt{x + 2} - 6$

c. $f(g(x)) = 2\sqrt{2x + 1}$

d. $f(g(x)) = 2\sqrt{2x - 1}$

Find functions f and g so that $h(x) = f(g(x))$.

17) $y = \frac{1}{x^2 - 3}$ 17) ____

a. $f(x) = 1/x^2$, $g(x) = x - 3$

b. $f(x) = 1/3$, $g(x) = x^2 - 3$

c. $f(x) = 1/x$, $g(x) = x^2 - 3$

d. $f(x) = 1/x^2$, $g(x) = -1/3$

18) $y = |2x + 4|$ 18) ____

a. $f(x) = -|x|$, $g(x) = 2x + 4$

b. $f(x) = |-x|$, $g(x) = 2x - 4$

c. $f(x) = x$, $g(x) = 2x + 4$

d. $f(x) = |x|$, $g(x) = 2x + 4$

Find the inverse $(g(x))$ of the function.

19) $f(x) = \sqrt{x - 6}$ 19) ____

a. $g(x) = x^2 + 6$, $x \geq 0$

b. Not a one-to-one function

c. $g(x) = (x - 6)^2$

d. $g(x) = x + 6$

20) $f(x) = \frac{-3x - 7}{9x - 4}$ 20) ____

a. $g(x) = \frac{4x - 7}{9x + 3}$

b. $g(x) = \frac{-3x - 7}{9x - 4}$

c. $g(x) = \frac{9x + 3}{4x - 7}$

d. Not a one-to-one function

Problems from:

<http://myteacherpages.com/webpages/RSlobodnik/files/Precalculus%20Final%20Review.pdf>

